Claims

We claim:

1. A method for introducing one or more hydroxyl groups or an epoxide into a polyketide, which method comprises expressing a recombinant gene encoding a P450 monoxygenase in a host cell.

2. The method of Claim 1, wherein said P450 monooxygenase is not naturally expressed by the host cell.

3. The method of Claim 2, wherein said polyketide is not naturally produced by the host cell.

4. The method of Claim 1, wherein said host cell is a *Streptomyces* host cell.

5. The method of Claim 1, wherein said P450 monooxygenase is OleP.

6. The method of Claim 3, wherein said polyketide is produced by a 6-deoxyerythronolide B synthase.

7. The method of Claim 3, wherein said polyketide is produced by a 8,8a-deoxyoleandolide synthase.

8. The method of Claim 6, wherein a hydroxyl group is introduced at carbon 8 or 8a.

9. The method of Claim 7, wherein a hydroxyl group is introduced at carbon 8 or 8a.

10. The method of Claim 8, wherein 8,8a-dihydroxy-6-deoxyerythonolide B is produced.

11. The method of Claim 8, wherein 8,8a-dihydroxyoleandolide is produced.

12. The method of Claim 10, said method comprising culturing a host cell other than *Streptomyces antibioticus* that expresses DEBS and OleP under conditions such that 8,8a-dihydroxy-6-deoxyerythonolide B is produced.

13. The method of Claim 11, said method comprising culturing a host cell other than *Streptomyces antibioticus* that expresses DEBS and OleP under conditions such that 8,8a-dihydroxyoleandolide is produced.

14. The method of Claim 12, wherein said host cell is a *Streptomyces* host cell.

15. The method of Claim 13, wherein said host cell is a *Streptomyces* host cell.

16. The method of Claim 14, wherein said host cell is *S. lividans*.

17. The method of Claim 15, wherein said host cell is *S. lividans*.

18. A compound selected from the group consisting of 8-hydroxy-6-deoxyerythronolide B, 8a-hydroxy-6-deoxyerythronolide B, 8-hydroxy-8,8a-deoxyoleandolide, 8a-hydroxy-8,8a-deoxyoleandolide, 8,8a-dihdroxy-6-deoxyerythronloide B, 8,8a-dihydroxyoleandolide, 8,8a-dehydro-6-deoxyerythronolide B, and 8,8a-anhydrooleandolide.

19. The compound of Claim 18 that is 8,8a-dihdroxy-6-deoxyerythronloide B.

20. The compound of Claim 19 in substantially pure form.